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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/761,886	01/17/2001	Ashok Krishnamoorthy	Aralight-1	6027

7590 07/05/2002
Keith Goossen
137 Easy Street
Howell, NJ 07731

EXAMINER

THAI, LUAN C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/761,886

Applicant(s)

KRISHNAMOORTHY ET AL.

Examiner

Luan Thai

Art Unit

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HL

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-17 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restriction

Applicant's election without traverse of group I, claims **1-4 and 9-17** in Paper No. 6 filed April 5, 2002 is acknowledged.

Claims **5-8** are withdrawn from consideration as being directed to a non-elected invention.

Drawings

1. Figures 1-4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **9-12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim **9**, the limitation of "a metallic pad having a first region bearing a fused material which connects to a second pad; and a second region lacking fused material" is unclear as to how the second pad is positioned. Is the second pad also formed on the surface of the die?

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Claims **10-12** are rejected since each includes the limitations of independent claim **9**.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

a 9-11

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al (6,351,405) in view of Farnworth et al (6,130,148).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 1 and 3, Lee discloses (see specifically figure 2) an apparatus comprising: a two-part metallic pad 121 comprising a first pad 211, which is rectangular, a second pad 221, which is rectangular, and having one edge coinciding with part of an edge of the first pad. Lee further discloses an electronic circuitry supported by a semiconductor substrate, and a trace connecting to the two-part pad 121 (see figure 1). Lee fails to teach the thickness of the two-part pad (about 1 micron) as claimed.

A bond pad having 1-micron thick, however, is conventional in semiconductor art, as taught by Farnworth et al (Col. 4, lines 30+). It would have been obvious to one of ordinary skill in the art at the time the invention was made

to form the pad in Lee's device to have 1 micron thick, since a bond pad having such thickness is conventional in the art, as disclosed by Farnworth et al.

The proposed device of Lee and Farnworth et al discloses all the limitations of the claimed invention as detailed above except for the dimensions of the first pad (e.g., about 50 microns X 50 microns) and of the second pad (e.g., about 30 microns X 30 microns). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the first and second pads to have the dimensions as claimed because the dimension of the bond pad is an art recognized variable of importance which is subject to routine experimentation and optimization.

Furthermore, although the proposed device of Lee and Farnworth et al does not disclose exactly the dimension of the pad as that claimed by Applicant, the dimension differences are considered obvious design choices and are not patentable unless unobvious or unexpected results are obtained from these changes. Additionally, the Applicant has presented no discussion in the specification which convinces the Examiner that the particular dimension of the pad is anything more than one of numerous dimensions a person of ordinary skill in the art would find obvious for the purpose of forming a pad for testing or electrical bonding. *In re Dailey*, 149 USPQ 47 (CCPA 1976). It appears that these changes produce no functional differences and therefore would have been obvious.

Regarding claims 2 and 4, Lee further teaches that a damage occurring to the first pad as a result of testing of the electronic circuitry does not inhibit wetting of solder to the second pad (Col. 4, lines 4+ and lines 20+).

Regarding claims 9 and 11, Lee teaches the a die 101 containing integrated circuits (see figures 1-2); on a surface of the die, a metallic pad having a first and a second regions (221/211), which are generally rectangular in shape and share a common border. Lee further discloses the first region 221 is bonded to a bonding wire (Col. 4, line 20+) and the second region 211 is a probing portion of the pad. Therefore, the first region 221 of the pad 121 is obviously to be considered as bearing a fused material, and the second region 211 of the pad 121 is obviously to be considered as lacking fused material.

The further citations of claim 10 would have been obvious for the similar reasons set forth in the discussion of claim 1 above.

5. Claims 9 and 11-12, insofar as in compliance with 35 USC § 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (4,268,843).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 9 and 11, Brown et al teach the a die 11 containing an integrated circuit (see figures 1-4); on a surface of the die, metallic pads 19-20 each having a first and a second regions, which are generally rectangular in shape and share a common border (see figure 8), wherein the first region is

smaller than the second region. Since Brown et al further disclose the first region of pad 19 (e.g., the thin portion of the pad) is electrically connected to the anode of the photodiode 18 (see figure 8, Col. 2, line 40+), the first region of the pad 19 is obviously to be considered as bearing a fused material, and the other region of the pad 19 (including the second region) that is not connected to the photodiode 18 is considered as lacking fused material.

Regarding claim 12, Brown further disclose the die comprising crystalline silicon, the integrated circuit comprise a driver (11) for lasers (e.g., LED array), and further comprising: a second die 25, containing lasers 18 and a pad 56 connecting to the fused material 19 (see figure 3).

Allowable Subject Matter

6. Claims 13-17 are allowed.
7. The following is an examiner's statement of reasons for allowance:

The cited art fails to teach or render obvious an apparatus comprising: a first array of metallic pads A, supported by a first substrate; a second array of metallic pads B, supported by a second substrate, each pad B connected to a respective pad A by a solder bond; a third array of metallic pads C, each pad C supported by the first substrate and electrically connected to a respective pad A; a control circuit which delivers signals to the pads A; and an array of optoelectronic devices, each connected to a respective pad B.

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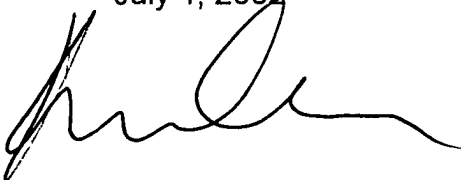
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is (703) 308-1211.

The examiner can normally be reached on 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Luan Thai
July 1, 2002

A handwritten signature in black ink, appearing to read 'Kamand Ouneo', with a stylized, flowing script.

KAMAND OUNEO
PRIMARY EXAMINER